

10 30 50  
 ATGCTCAGGGTTCCGGAGCCGCGCCCGGGGAGCCGAAAGCGAGGGGGCCGCGCGCCG  
 M L R V P E P R P G E A K A E G A A P P  
 70 90 110  
 ACCCCGTCCAAGCCGCTCAGTCCTTCCTCATCCAGGACATCCTGCGGGACGGCGGCAG  
 T P S K P L T S F L I Q D I L R D G A Q  
 130 150 170  
 CGGCAAGGCGCCGACGAGCAGCCAGAGACAGCGGACCCGAGCCGGAGCCAGAGCCA  
 R Q G G R T S S Q R Q R D P E P E P E P  
 190 210 230  
 GAGCCAGAGGGAGGACGCAGCCGCCCGGGGCGCAGAACCAGCTGAGCACCGGGCCCC  
 E P E G G R S R A G A Q N D Q L S T G P  
 250 270 290  
 CCGCGCCGCGCCGAGGAGGCCGAGACGCTGGCAGAGACCGAGCCAGAAAGGCACTTGGGG  
 R A A P E E A E T L A E T E P E R H L G  
 310 330 350  
 TCTTATCTGTTGGA CTCTGAAAACACTTCAGGCGCCCTTCCAAGGCTTCCCCAAACCCCT  
 S Y L L D S E N T S G A L P R L P Q T P  
 370 390 410  
 AAGCAGCCCGAGAAGCGCTCCCGAGCTGCCTTCTCCCACTCAGGTGATCGAGTTGGAG  
 K Q P Q K R S R A A F S H T Q V I E L E  
 430 450 470  
 AGGAAGTTCAGCCATCAGAAGTACCTGTCGCCCCCTGAACGGGCCACCTGGCCAAGAAC  
 R K F S H Q K Y L S A P E R A H L A K N  
 490 510 530  
 CTCAGCTCACGGAGACCCAAGTGAAGATATGGTTCCAGAACAGACGCTATAAGACTAAG  
 L K L T E T Q V K I W F Q N R R Y K T K  
 550 570 590  
 CGAAAGCAGCTCTCCTCGGAGCTGGGAGACTTGGAGAAGCACTCCTCTTTGCCGGCCCTG  
 R K Q L S S E L G D L E K H S S L P A L  
 610 630 650  
 AAAGAGGAGGCCTTCTCCCGGGCCTCCCTGGTCTCCGTGTATAACAGCTATCCTTACTAC  
 K E E A F S R A S L V S V Y N S Y P Y Y  
 670 690  
 CCATACCTGTACTGCGTGGGCAGCTGGAGCCCAGCTTTTGGGTAA  
 P Y L Y C V G S W S P A F G \*

FIG.1

10	30	50
ATGCTCAGGGTTCCCGAGCCGCGGCCCGGGAGCGCAAAGCGAGGGGGCCCGCCGCCG		
M L R V P E P R P G E A K A E G A A P P		
70	90	110
ACCCCGTCCAAGCCGCTCACGTCTTCCTCATCCAGGACATCCTGCGGGACGGCGCGCAG		
T P S K P L T S F L I Q D I L R D G A Q		
130	150	170
CGCAAGGCGGCCGACGAGCAGCCAGAGACAGTGGACCCCGAGCCGAGCCAGAGCCA		
R Q G G R T S S Q R Q C D P E P E P E P		
190	210	230
GAGCCAGAGGGAGGACGCAGCCGCGCGGGCGCAGAACGACCAGCTGAGCACCGGGCCC		
E P E G G R S R A G A Q N D Q L S T G P		
250	270	290
CGCGCCGCGCCGAGGAGCCGAGACGCTGGCAGAGACCGAGCCAGAAAGGCACTTGGGG		
R A A P E E A E T L A E T E P E R H L G		
310	330	350
TCTTATCTGTTGACTCTGAAAACACTTCAGGCGCCCTTCCAAGGCTTCCCCAAACCCCT		
S Y L L D S E N T S G A L P R L P Q T P		
370	390	410
AAGCAGCCGAGAAGCGCTCCCGAGCTGCCTTCTCCACACTCAGGTGATCGAGTTGGAG		
K Q P Q K R S R A A F S H T Q V I E L E		
430	450	470
AGGAAGTTCAGCCATCAGAAGTACCTGTGCGCCCCTGAACGGGCCACCTGGCCAAGAAC		
R K F S H Q K Y L S A P E R A H L A K N		
490	510	530
CTCAAGCTCACGGAGACCCAAGTGAAGATATGGTTCAGAACAGACGCTATAAGACTAAG		
L K L T E T Q V K I W F Q N R R Y K T K		
550	570	590
CGAAAGCAGCTCTCCTCGGAGCTGGGAGACTTGGAGAAGCACTCCTCTTTGCCGGCCCTG		
R K Q L S S E L G D L E K H S S L P A L		
610	630	650
AAAGAGGAGGCCTTCTCCCGGGCCTCCCTGGTCTCCGTGTATAACAGCTATCCTTACTAC		
K E E A F S R A S L V S V Y N S Y P Y Y		
670	690	
CCATACCTGTAAGTGGGAGCTGGAGCCAGCTTTTGGGTAA		
P Y L Y C V G S W S P A F G *		

FIG.2

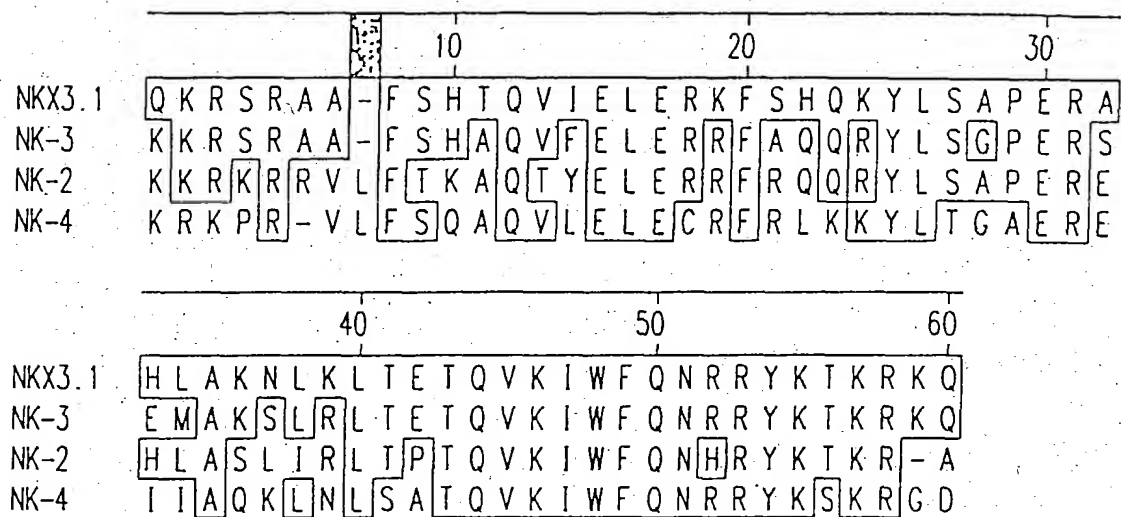


FIG. 3A

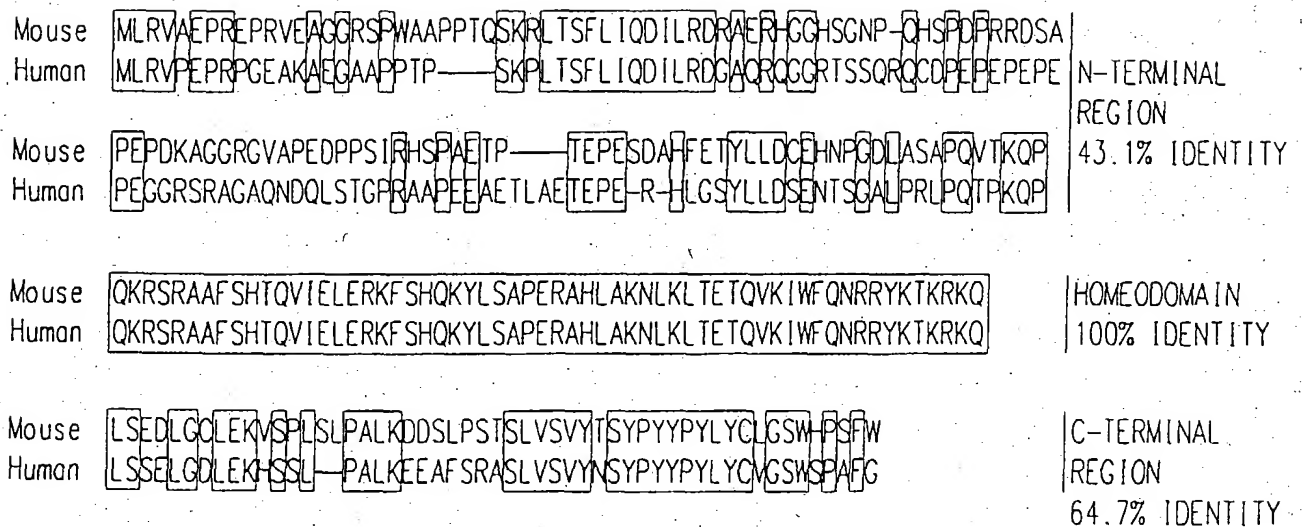


FIG. 3B

MLRVPEPRGCAEAGAAPPTPSKPLTSLFIQDILRDGAQRQCGGR

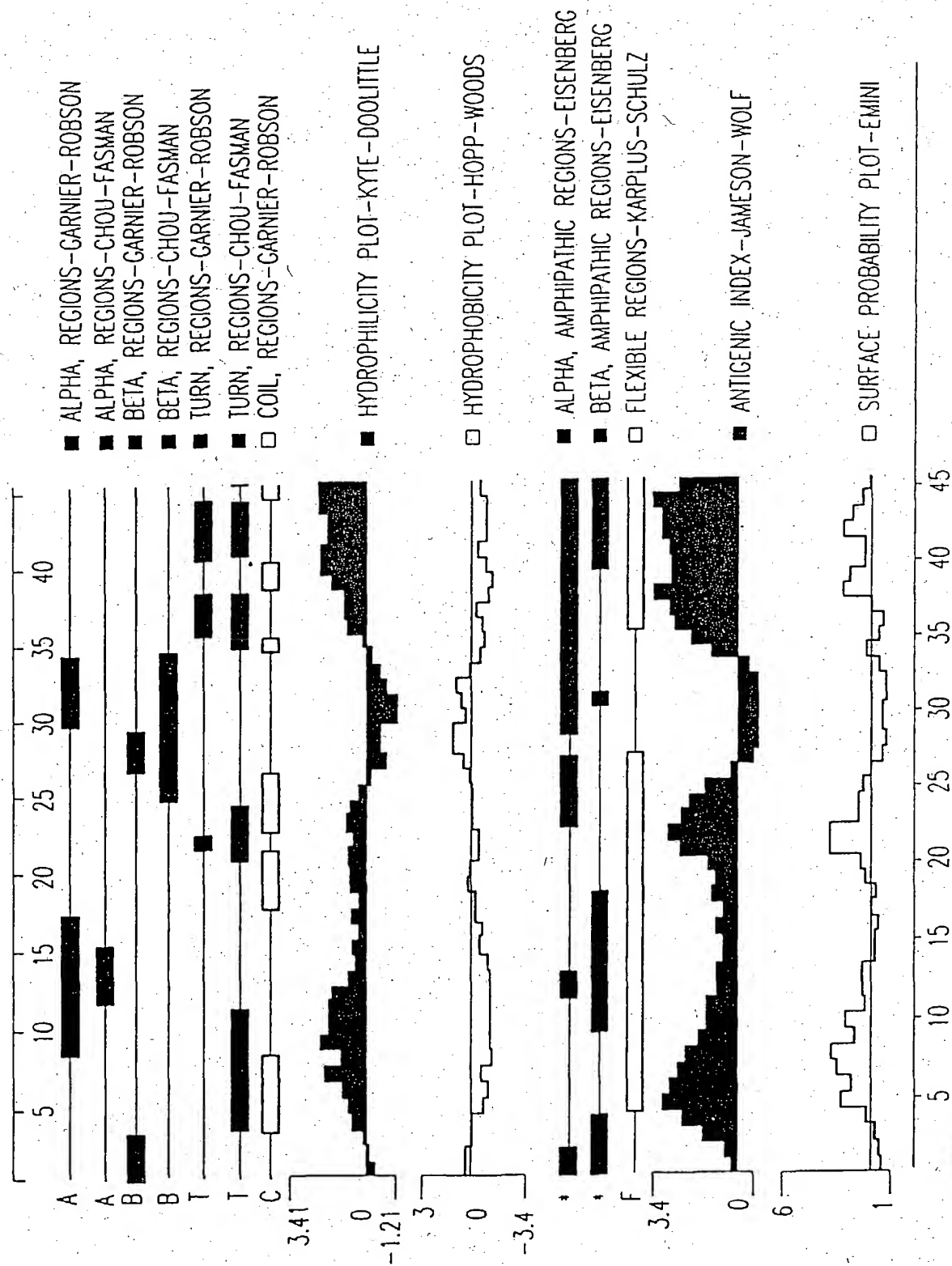


FIG. 4A

TSSQRDPEPEPEGGRSRAQNDQLSTGPRAAPEAETL

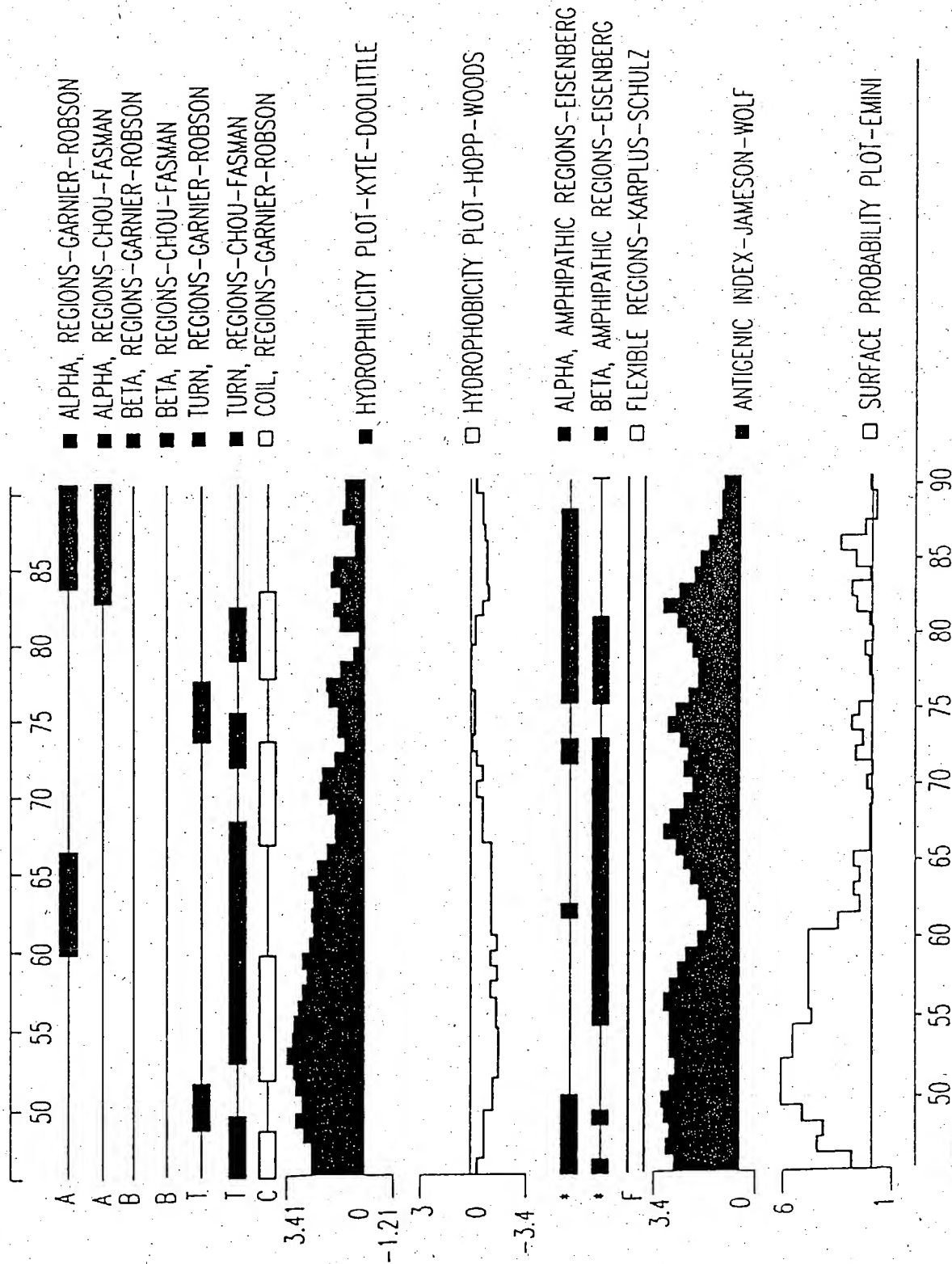


FIG. 4B

AETEPERHLGSLDSENTSGALPRLPQTPKQPQRSRAAFSHTQ

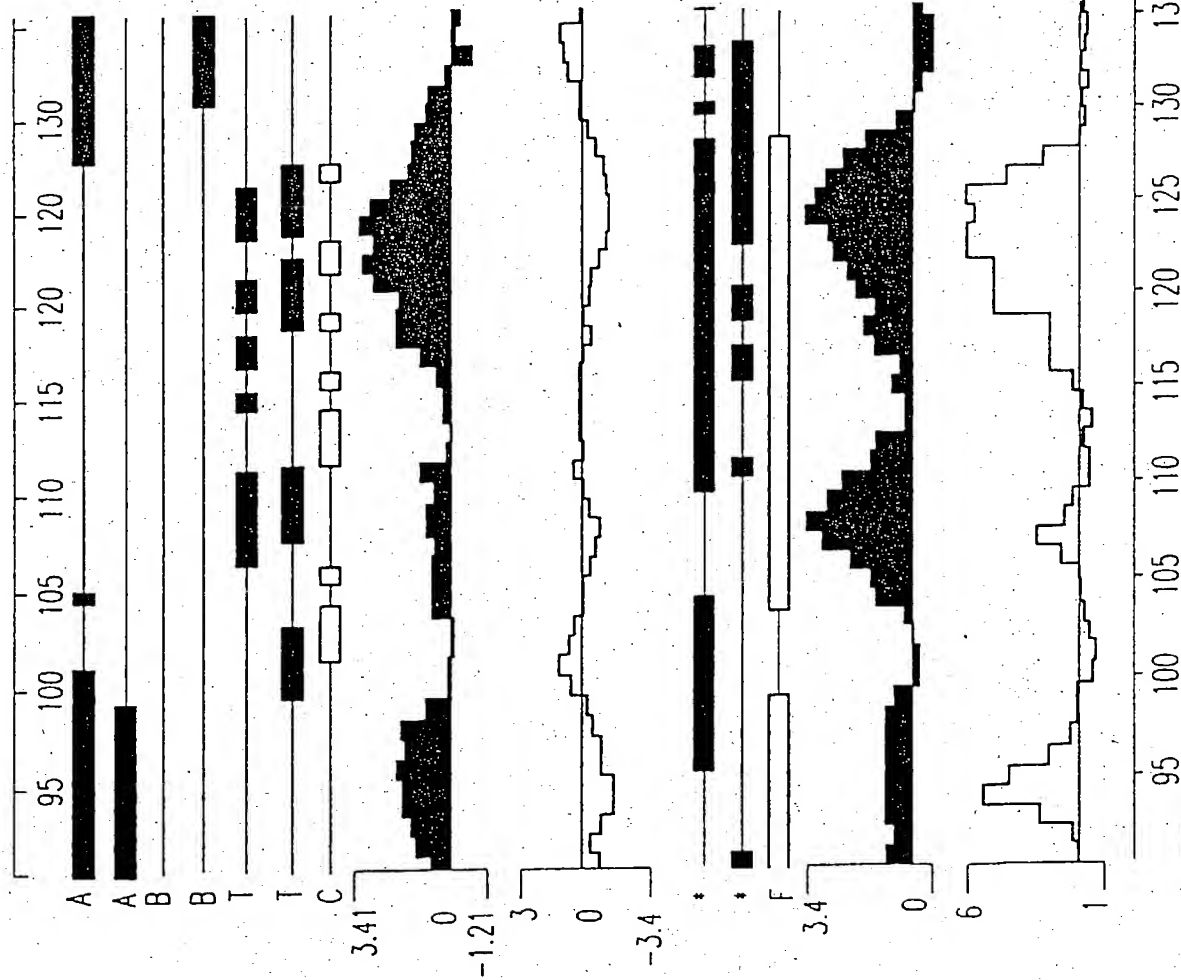


FIG. 4C

VIELERKFSHQYLSAPERAHAKNLKLTETQVKIWFQNRRYKTK

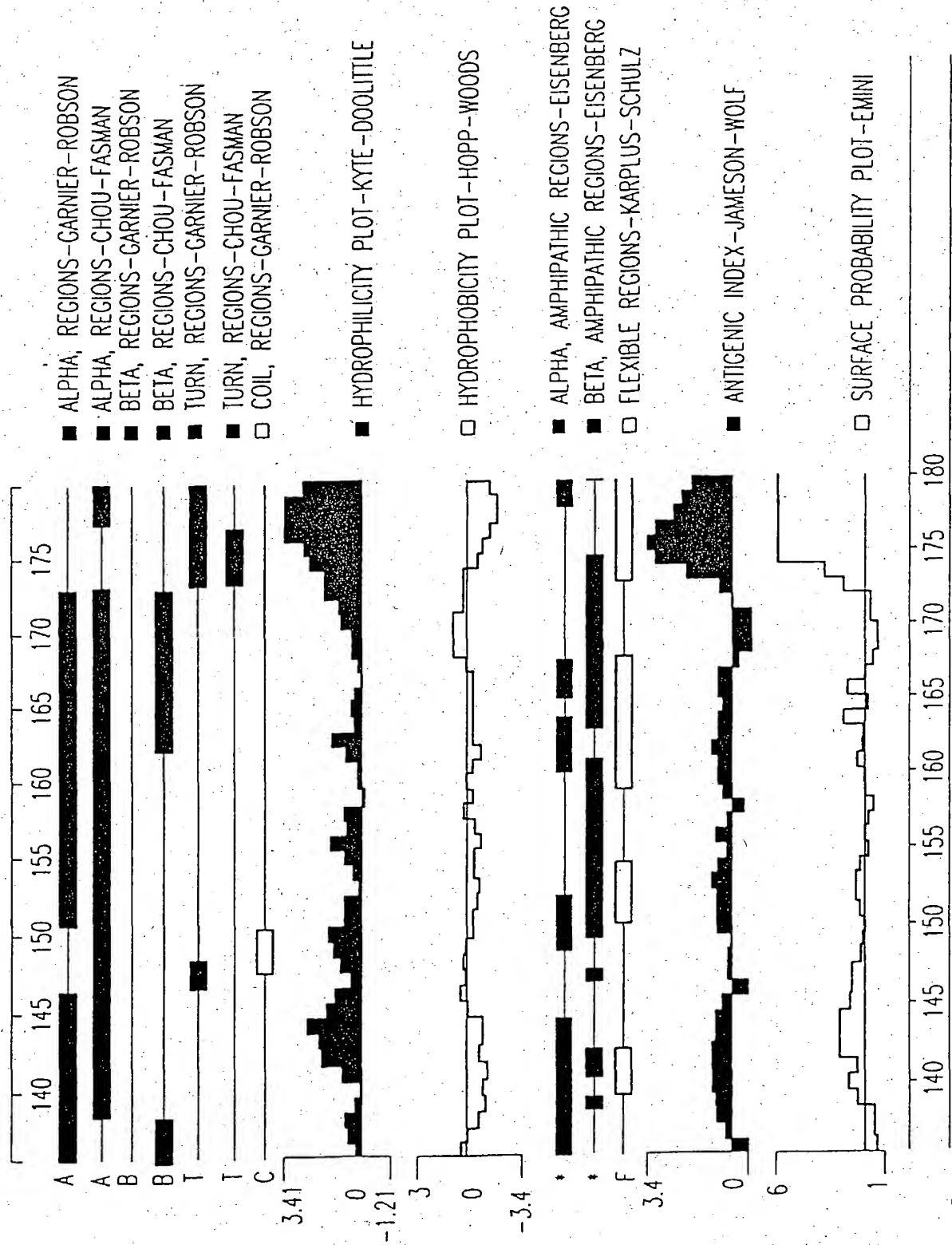


FIG. 4D

RKQLSSELGDLEKHSSLPALKEEAFSRASLSVSNYPYPYLYC

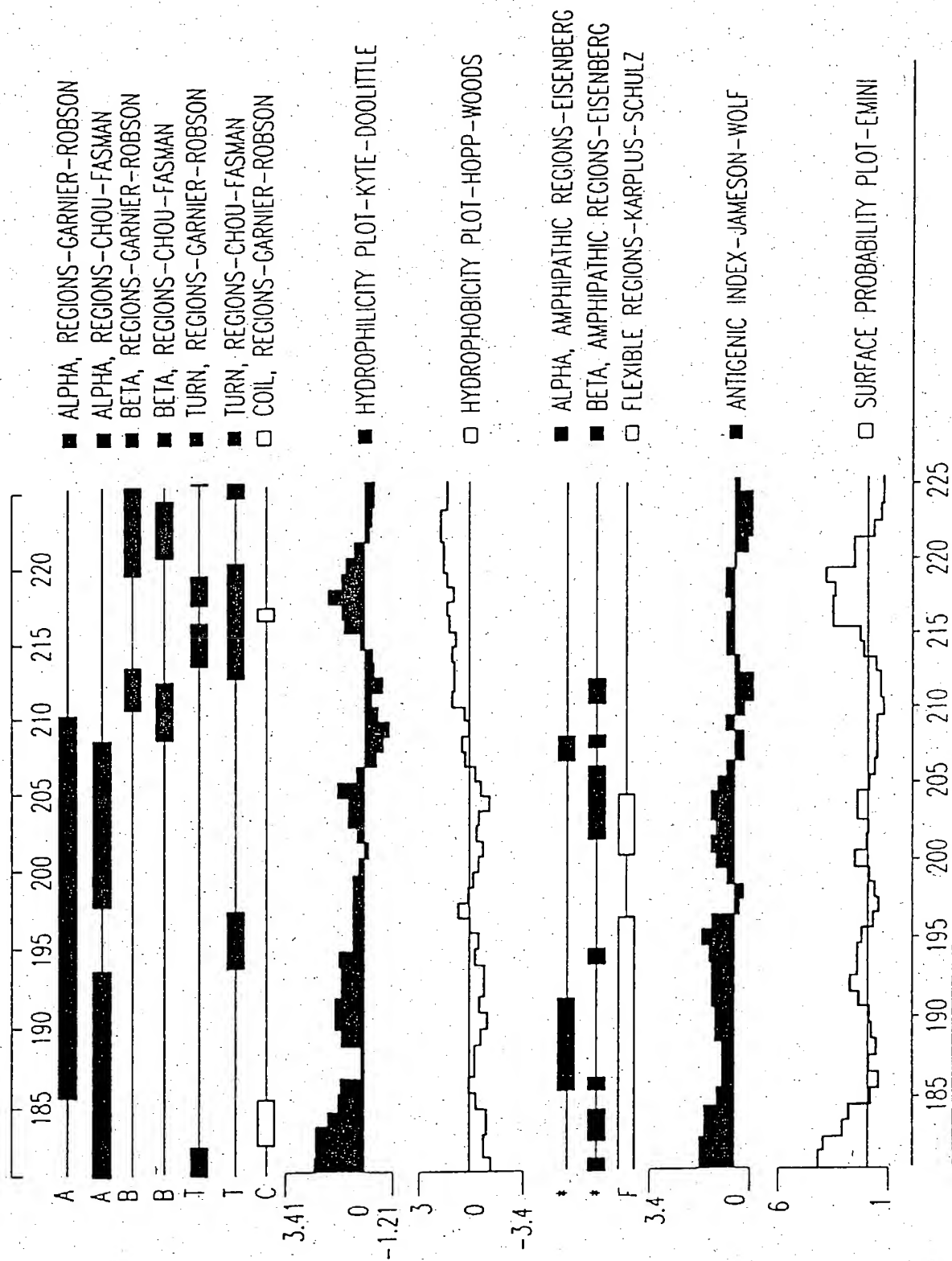
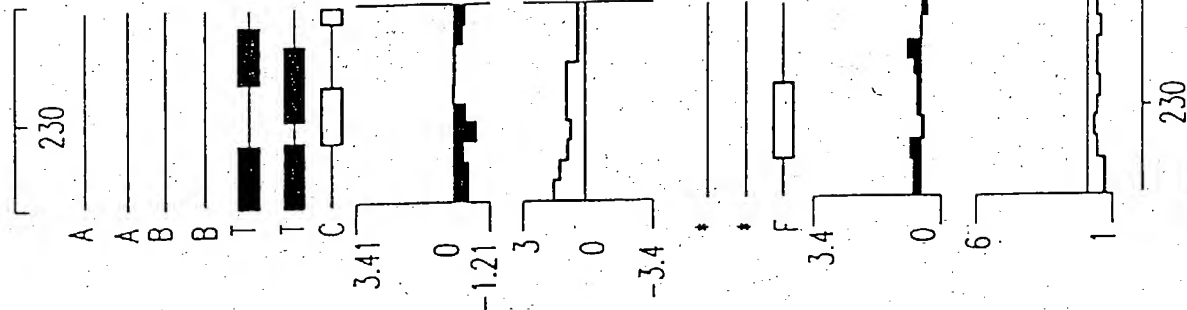


FIG. 4E



VCSWSPAFG



- ALPHA, REGIONS-GARNIER-ROBSON
- ALPHA, REGIONS-CHOU-FASMAN
- BETA, REGIONS-GARNIER-ROBSON
- BETA, REGIONS-CHOU-FASMAN
- TURN, REGIONS-GARNIER-ROBSON
- TURN, REGIONS-CHOU-FASMAN
- COIL, REGIONS-GARNIER-ROBSON

- HYDROPHILICITY PLOT-KYTE-DOOLITTLE

- HYDROPHOBICITY PLOT-HOPP-WOODS

- ALPHA, AMPHIPATHIC REGIONS-EISENBERG
- BETA, AMPHIPATHIC REGIONS-EISENBERG
- FLEXIBLE REGIONS-KARPLUS-SCHULZ

- ANTIGENIC INDEX-JAMESON-WOLF

- SURFACE PROBABILITY PLOT-EMINI

FIG. 4F

1 AATTAACCT CACTAAAGG AACAAAAGCT GGAGCTCCAC  
41 CCGGTGGCG GCCCGTAAT ACGACTCACT ATAGGGCGAA  
81 GAATTCGAT CTATCAATCT GCATCCTTGT TTCAGAACCA  
121 TTTGATGTA GTTTCATAAA TCTTGTGCCT TTGCTCCTAC  
161 TTACTTCAGT GTTTATTTC TAAAAATATT CTCTTGACA  
201 CTGACAGTAC AATGTGCAAT TTCAGTAAAT TTAACATTAA  
241 TTCAATACTT CCATCATCGA CCTGACACTG AGACTCATGC  
281 CTGTAGTCTT GGCACCTTGA GAGGCCAAGG CAGGAGGATC  
321 ACTGAATCC AGGAAATCGA GGCTGCAGTG AGTTATGATG  
361 GCATCACTGC ACTCCAGCCT GGGCGGCAGA GGGAGACCTT  
401 GTCCGTAAAA AACAGAAGAG AAAAGACAAG GAAAGAAAAT  
441 ACTTCCATCA TCTCTGTTCC ACTTTCGTCT GTTGTACGG  
481 TACCGTCCAG TCCAGTCACA GTACCGGTTG GACCAATCTG  
521 GCTAACCCAT TGTTAGCCA ATGGGTTACA TGTTAACAGT  
561 TGGTAATCTG CAAAAAGAGT ATGCTGATGT TCTTTGAAC  
601 TACTTTTTTA AATGCAGTTT TTGCATTTGT CCCTGGCCTA  
641 AAACGCCTTC CATCCGTCTG GAACTTTTC AAAAGGATGG  
681 TATGTCATGT GTCTGGGAG GAAGGAAAGT TAACAGGTTA  
721 TTGCGGATAA AGGAACCACC AAAGAAAACC ACTTCTGCAA  
761 CGGGAAAAGG CTTTGGCAA GGTGTTTTCC TTCTTTCAGC  
801 CTGGGTCTG GCTGCACCTA CTGTGATGC CTCTTGAGG  
841 TCGTAGATAT TGCAGATCTG AGTTTGACC ATCTCTCCCA  
881 GAGAGAGAGA GCACCCAGAA CTCTACGGT ACCGCGCGGC  
921 TGCAGTACT GCGTGCTCAT CCCCTGTAAT TGGCTCTGAC  
961 GGTCTGAAG AGCTAACTGG ACTGTTTGTG TTGATCGTCC  
1001 CATCCCAGG AGCTTCTCTC TGCTGCGGGT GGGTTGGGGC  
1041 AGAGGAGCCC CGCTTTGGGG TCGCTCCTG GCCTGGGAAA  
1081 ACGGCTCAGG GCGGAGGAG GAGAGCTGGA GAAGGAGAGG  
1121 AAATTGGGA AGGAGAGGA ATTGGGAAG GAGAGGAAC  
1161 TGGGAAGGA ATCCCTAGG GAGGAGCGA GCGGGCAGT  
1201 GCTCAGGCT CGCAGATCGG CCGGTCACC TGGGCTCAG  
1241 GCGGCCAAT CCGCGGCGG GCCCGTCCC GGGCCAATGG  
1281 GAGGCGGCG CGGCCGCTC CCTGGGCTA TAAGCGAGCC  
1321 GGGAGCGGA AAGTGAAGC GGTGCGGCC GGGCGGTGC  
1361 ATTAGGCCA AGGCGGGCC GCCGGATGC TCAGGTTCC  
1401 GGAGCCCGG CCCGGGAGG CGAAAGCGA GGGGCGCGG  
1441 CCGCGACCC GTCCAAGCC GCTCAGTCC TTCCTCATCC  
1481 AGGACATCCT GCGGACGGC GCGAGCGGC AAGCGGCGG  
1521 CAGGAGCAG CAGAGACAG GCGACCGGA GCGGAGCCA  
1561 GAGCCAGAG CAGAGGAGG ACGAGCCGC GCGGGGCGC

FIG. 5A

1601 AGAACGACCA GCTGAGCACC GGGCCCCGCG CCGCGCCGGA  
1641 GGAGGCCGAG ACCGTGGCAG AGACCGAGCC AGGTAAGCGG  
1681 CGAGGCCGGG GAAGGGGGG AGCCCAAGGC GGACCCCGAG  
1721 AGCTCGGGGT GCAGGGACGC GGGGCTCCGC GCGACAGGC  
1761 AGAGGGACCT TCCCGCCTCC GCAGCCACGC GCGCGCCCCC  
1801 GGAATGAACC CTGAGCCCCA GCGTCAGGGC GGCGCAGGAT  
1841 TCTGACACCG CAGGATTCCG CCGGTTCGT GCCTTCCGT  
1881 CCCTGGGGCT CAGAAGCCGG CCGGACTGCA GCGCCACCGC  
1921 CTTCCACCGT CCCAGGAGCG GATCCCGCCC CCGGCCACCC  
1961 GCGATCGGCG CCAGCCCCC GGTAGTTATG AGAANTAATA  
2001 ATAACCTATT AACAGTGACA AAGCAGGGT TGACCAGCAA  
2041 AGCCTCCGTG TGCTTCCCAA TCCGTGGGC AGTAAAGCGG  
2081 TATATTCGGG GTTCCCTCCG GTGTCCAGGA GAGAGAGTCC  
2121 ACTTATTTT TTTCTGTCA CTCTGATGA GCGACCGAA  
2161 CGCCTCGTT AGCGAAGAGG GAATTAAAGC CCAGAATGAG  
2201 CCTGCCTCTG CGTCTCCAGT GGCACAAGCC CTCTTTGCC  
2241 CACCTGGATC CTAACACCGG ATGTCTTTG GTCTGGCCTT  
2281 CCCGGGTATC TTGTTCCACC GCATTTTCCC TGCTCCCTC  
2321 TCCCGCTCT CCTCAGCACA CAGATCCAGA ATCCCCATAT  
2361 AATTCTACTA GACAGTAGGG AGAAAGTTCA ACCACGAAAC  
2401 GTCTCTAACT TTGGGTTCTT GATGATTCTT AGCAAATGAA  
2441 TCGTAATAA ACATATTTAC TCACTCTTCA CTCCGGAGAG  
2481 CTCCTTAGTC ATGTGAAAAA AGTGAAATGT ATCCACGATG  
2521 ACAGTGGGCT GTTGTTCAC TCACTAAAGA GATAAGGGTG  
2561 GATTGAATTC TCTTCTCTC CCTGCTAACA TGTAACTTT  
2601 GTCTTCCCAT CCCTCCTTCC CCACTCTCCT TTCCAGAAAG  
2641 GCACTTGGGG TCTTATCTGT TGGACTCTGA AAACACTTCA  
2681 GGCGCCCTTC CAAGGCTTCC CCAAACCCCT AAGCAGCCGC  
2721 AGAAGCGCTC CCGAGCTGCC TTCTCCACA CTCAGGTGAT  
2761 CGAGTTGGAG AGGAAGTTCA GCCATCAGAA GTACCTGTGC  
2801 GCCCCTGAAC GGGCCACCT GGCCAAGAAC CTCAAGCTCA  
2841 CGGAGACCCA AGTGAAGATA TGGTTCAGA ACAGACGCTA  
2881 TAAGACTAAG CGAAAGCAGC TCTCCTCGGA GCTGGGAGAC  
2921 TTGGAGAAGC ACTCCTCTTT GCCGGCCCTG AAAGAGGAGG  
2961 CTTTCTCCCG GGCCTCCCTG GTCTCCGTGT ATAACAGCTA  
3001 TCCTTACTAC CCATACCTGT ACTGCGTGGG CAGCTGGAGC  
3041 CCAGCTTTTG GGTAAAGCCA GCTCAGGTGA CAACCATTAT  
3081 GATCAAAAAC TGCCTTCCCC AGGGTGCTC TATGAAAAGC  
3121 ACAAGGGGCC AAGGTCAGG AGCAAGAGGT GTGCACACCA  
3161 AAGCTATTGG AGATTTCGT GGAAATCTCA GATTCTTAC

FIG. 5B

3201 TGGTGAGACA ATGAAACAAC AGAGACAGTG AAAGTTTTAA  
 3241 TACCTAAGTC ATTCTCCAG TGCATACTGT AGGTCATTTT  
 3281 TTTTGGTTCT GGCTACCTGT TTGAAGCGGA GAGAGCGAAA  
 3321 ATCAAGTGGT ATTTTCCAGC ACTTTGTATG ATTTTGGATG  
 3361 AGTTGTACAC CCAAGGATTC TGTTATGCAA CTCCATCCTC  
 3401 CTGTGTCAC TGAATATCAAC TCTGAAAGAG CAAACCTAAC  
 3441 AGGAGAAAGG ACAACCAGGA TGAGGATGTC ACCAACTGAA  
 3481 TTAAACTC

FIG. 5C

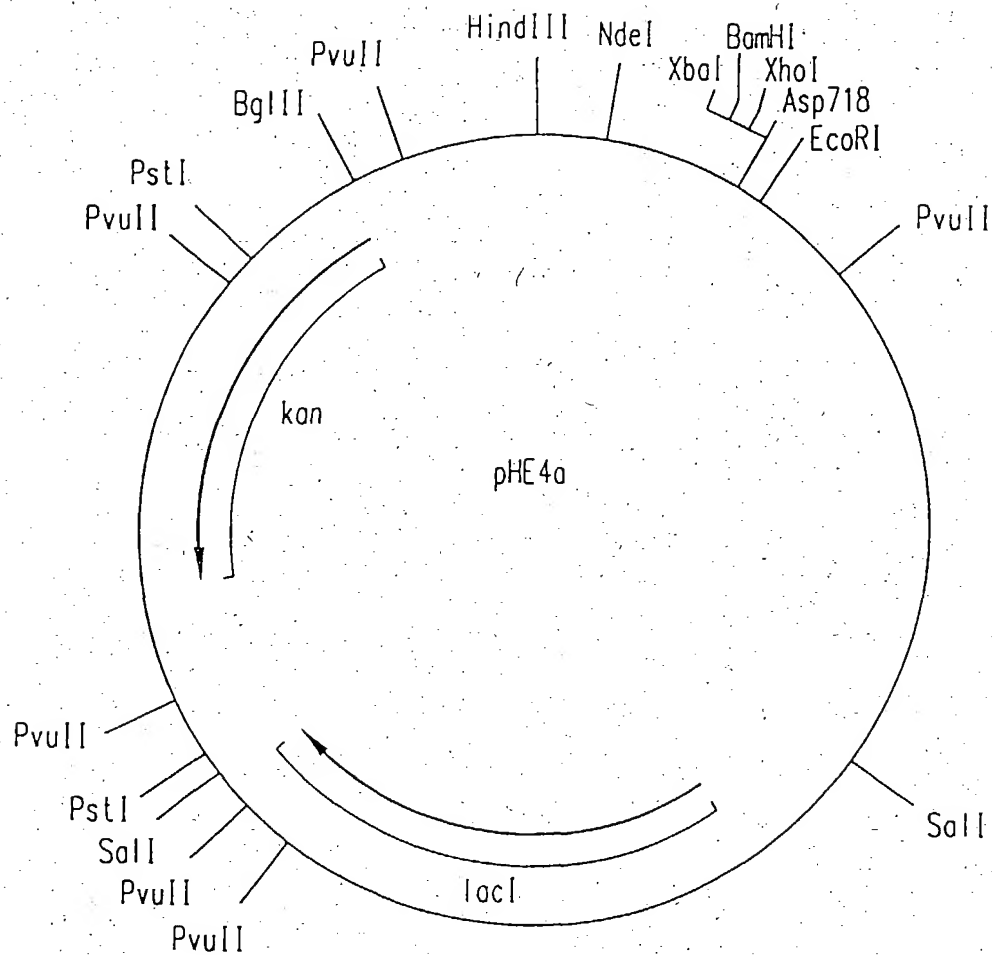


FIG. 6

1 AAGCTTAA AACTGCAAAATAGT TTGACI TGTGAGCCGATAACAAT

-35

Operator 1

50 TAAGATTGTACCCAAATTGTGAGCCGATAACAAT TTCACACATTAA

-10

Operator 2

S/D 94 AGAGGAGAAATTA CATATG

FIG.7